ABSTRACT OF THE DISCLOSURE

Object encoding and decoding methods that encode and decode a surface of an object are provided. The method uses a distance function defined on the surface of the object. In particular, when the object is represented by a polygon mesh, the function outputs a graph distance from a base vertex in the polygon mesh to a specific vertex. The surface of the object is then decomposed into a plurality of shape components on the basis of the graph distance. The shape components are then encoded. The encoded data can include a description indicating that the object is a non-manifold if the shape represented by the polygon mesh is a non-manifold.

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